

In accordance with 37 C.F.R. 1.136(a), a one month extension of time is submitted herewith to extend the due date of the response to the Office Action dated November 20, 2002, for the above-identified patent application from February 20, 2003, through and including March 20, 2003. In accordance with 37 C.F.R. 1.17(a)(3), authorization to charge a deposit account in the amount of \$110 to cover this extension of time request also is submitted herewith.

Applicants note the objections to the drawings. Submitted herewith is an amendment to the specification in which the second occurrence of "104" has been amended to "102". For the reasons set forth above, Applicants request that the objection to the drawings be withdrawn.

The rejection of Claims 1-15 under 35 U.S.C. § 103 as being unpatentable over Harms (U.S. Patent No. 4,668,989) and further in view of DuBois et al. (U.S. Patent No. 5,757,096) and Nadir et al. (U.S. Patent No. 6,291,912) is respectfully traversed.

Harms et al. describe an electronically commutated motor. More specifically, as described at Col. 9, lines 46 - 53, in Harms et al., the motor comprises "a flat faced end shield or adapter 73, having a plurality of rabbit-ear extensions 74 thereon is mounted to housing 71 at one opposite end thereof and a thermally conductive enclosure or enclosure means, such as a housing 75 or the like for instance, is arranged in mounting and enclosing association with the flat faced end shield thereby to enclose the housing at the one opposite end thereof." Harms et al do not describe a control assembly in contact with an inner surface of an endshield. Rather, Harms et al describe a control assembly positioned outside of an endshield and inside a thermally conductive enclosure.

Nadir et al describe an electric motor having a collar (11) that surrounds a control circuit board. A heat sink includes a housing positioned on an outer surface of an endshield. The housing receives the power electronic components. The heatsink is not positioned between the control assembly and an inner surface of the endshield. Nadir et al do not describe a control assembly in contact with an inner surface of an endshield. Rather, Nadir et al describe a heatsink housing power electronic components outside of the endshield.

Dubois et al. describe an endshield that includes a plurality of fins on an outer surface. Dubois et al do not describe a control assembly in contact with an inner surface of an endshield.

Claim 1 recites an endshield comprising an outer surface and an inner surface, the outer surface including a plurality of fins, a control assembly in contact with the inner surface, and a power assembly connected to the control assembly.

None of Harms et al, Nadir et al and Dubois et al, alone or in combination, teach or suggest a motor endshield assembly comprising a control assembly in contact with an inner surface of an endshield and a power assembly connected to the control assembly.

For the reasons set forth above, Claim 1 is submitted to be patentable over Harms et al and further in view of DuBois et al and Nadir et al.

Claims 2-15 depend from independent Claim 1. When the recitations of Claims 2-15 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-15 likewise are patentable over Harms et al and further in view of DuBois et al and Nadir et al.

In addition, Claim 4 recites that the control assembly further comprises a thermal pad between the power transistors and the endshield. Applicants respectfully submit the none of Harms et al, Nadir et al and Dubois et al, alone or in combination, teach or suggest a control assembly that comprises a thermal pad between the power transistors and the endshield.

Claim 7 recites that the transistors comprise a top surface, a bottom surface, a back, and a tab, the bottom surface contacting the control board, the tab extending from the back along the top surface. Applicants respectfully submit the none of Harms et al, Nadir et al and Dubois et al, alone or in combination, teach or suggest that the transistors comprise a top surface, a bottom surface, a back, and a tab, the bottom surface contacting the control board, the tab extending from the back along the top surface.

Claim 9 recites that the tabs comprise metal and contact a thermal pad which provides a thermal interface to the endshield. Applicants respectfully submit that none of Harms et al, Nadir et al and Dubois et al, alone or in combination, teach or suggest that the tabs comprise metal and contact a thermal pad which provides a thermal interface to the endshield.

Claim 13 recites that the power assembly comprises a power board and an insulator positioned between the power board and the control board. Applicants respectfully submit that none of Harms et al, Nadir et al and Dubois et al, alone or in combination, teach or

suggest that the power assembly comprises a power board and an insulator positioned between the power board and the control board.

Claim 14 recites that the endshield assembly further comprises a first spacer extending between the control board and the power assembly, a plurality of clamp bars positioned between the power assembly and the power transistors, the first spacer and the clamp bars extending through the insulator, and a second spacer extending between the control board and the endshield. Applicants respectfully submit that none of Harms et al, Nadir et al and Dubois et al, alone or in combination, teach or suggest that the endshield assembly further comprises a first spacer extending between the control board and the power assembly, a plurality of clamp bars positioned between the power assembly and the power transistors, the first spacer and the clamp bars extending through the insulator, and a second spacer extending between the control board and the endshield.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1-15 be withdrawn.

The rejection of Claims 16-20 under 35 U.S.C. § 103 as being unpatentable over Harms et al. (U.S. Patent No. 4,668,989) and further in view of Nadir et al. (U.S. Patent No. 6,291,912) is respectfully traversed.

Harms et al and Nadir et al have been described above. Claim 16 recites a motor endshield for an electronically commutated motor comprising an internal surface comprising a substantially flat surface area and an external surface comprising a plurality of recessed fins and a raised cylindrical portion surrounding a shaft opening.

Neither Harms et al nor Nadir et al, considered alone or in combination, teach or suggest an endshield for an electronically commutated motor comprising an internal surface comprising a substantially flat surface area and an external surface comprising a plurality of recessed fins and a raised cylindrical portion surrounding a shaft opening. The Office Action explains that Harms et al include an endshield comprising an internal surface that is substantially a flat raised area (32) and that the recessed fins (34) surround the shaft opening. Applicants respectfully submit that Harms et al do not describe either a raised surface 32 or recessed fins 34 and that these reference numbers are not contained within the Harms et al patent. Rather, Harms et al describe a housing 75 arranged in mounting and enclosing association with an outer surface of a flat faced end shield 73 to enclose a housing at one end.

Nadir et al describe an endshield that does not include recessed fins on an external surface thereof.

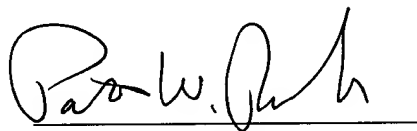
For the reasons set forth above, Claim 16 is submitted to be patentable over Harms et al and further in view of Nadir et al.

Claims 17-20 depend from independent Claim 16. When the recitations of Claims 17-20 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claims 17-20 likewise are patentable over Harms et al and further in view of Nadir et al.

It appears that Claims 21-25 have not been examined by the Examiner. With respect to these claims, the Office Action explains "the method of forming the device is not germane to the issue of patentability of the device itself. Therefore this limitation has not been given patentable weight." Page 6 of the Office Action. Claims 21-25 are pending in the application and Claim 21 is an independent claim directed to a method of assembling a motor endshield. Claims 22-25 depend from Claim 21. Accordingly, Applicants respectfully request an examination of Claims 21-25.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Patrick W. Rasche", written over a horizontal line.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kamron Wright, et al.

Serial No.: 09/806,604

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For: MOTOR ENDSHIELD
ASSEMBLY FOR AN
ELECTRONICALLY
COMMUTATED MOTOR

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: Art Unit: 2834
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: Examiner: Elkassabgi, Heba
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SUBMISSION OF MARKED UP PARAGRAPHS

Hon. Commissioner for Patents
Box Non-Fee Amendment
Washington, D.C. 20231

Submitted herewith are marked up paragraphs in accordance with 1.121(c)(1)(ii).

IN THE SPECIFICATION

Figure 1 is an exploded view of an endshield assembly 100 for an electronically commutated motor (not shown). Endshield assembly 100 includes an endshield 102, a control assembly 104, and a power assembly 106. Control assembly [104] 102 includes a control board 108, a plurality of transistors 110, a thermal pad 112, and a spacer 114. In one embodiment, spacer 114 is fabricated from nylon and extends between control board 108 and endshield 102. Spacer 114 helps to maintain a predetermined separation distance between control board 108 and endshield 102.

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